

ABSTRACT

A method of the surface treatment of a mold for casting, which comprises subjecting a cavity surface of a fixed mold (12) made by the use of a SCM420 material to first shot peening, a sulfurizing-nitriding treatment and second shot peening. The resulting cavity surface of the fixed mold (12) exhibits a high hardness of 700 or higher in terms of Vickers hardness due to the presence of a sulfurized and nitrided layer (32), and further has a compression residual stress of more than 1200 Mpa and a largest height (R_y), which is a surface roughness value defined by JIS standard, of $8\ \mu\text{m}$ or less.